

Submission Checklist  
**APPLICATION FOR HUMAN SUBJECTS  
IN RESEARCH CLEARANCE**

The attached form is to be completed by those using human subjects in research. Please refer to the attached "[Requirements for Research Using Human Subject](#)", to help define the category of exemption that you are applying for. If, after reading the attached information you have questions, contact Marsha Osborne 898-5413 or [HS&AC@csuchico.edu](mailto:HS&AC@csuchico.edu). Return your completed application to Marsha Osborne, Student Services Center (SSC), Room 460.

Each of the items below must be included on your form. Please mark each item on the checklist below when it is completed.

1. Application Category

- a. Exempt
- b. Expedited
- c. Joint Review
- d. Full Board Review
- e. Psychology

2.  Copy of Survey or Research Instrument attached

3.  Copy of Informed Consent form attached

4.  Obtain (Page 5) signature of the Department Chair, or thesis committee chair for thesis project, or faculty supervisor for group or individual class project(s) or other campus unit supervisor for research originating in non-academic units.

**NOTE: Incomplete applications will not be processed.** Incomplete forms will be returned for the required information before any further processing, which may result in a delay of clearance.

You will be notified when your application is approved, at which time you may proceed with data collection. A Post Data Collection Questionnaire will be mailed to you along with your letter of approval. After completing data collection, you will need to fill out and return the Post Data Collection Questionnaire in order to be fully cleared. Failure to provide this may result in academic delay.

---

Signature

02/16/2015

Date

---

Amy Rae Fox  
Name (print)

This application is also available on-line: <http://www.csuchico.edu/resp/formspoltravel/form/hsrc/hsrcapplication.doc>

## APPLICATION FOR HUMAN SUBJECTS IN RESEARCH CLEARANCE

Complete **ALL** items below: If an item does not apply, indicate N/A. Incomplete and unsigned applications cannot be processed.

Primary Investigator: Amy Rae Fox CSU Chico Portal ID# 006549453

Select a, b, c or d:  a. Undergraduate:  b. Graduate  c. Faculty  d. Staff

If a. is selected: Faculty Advisor \_\_\_\_\_

**If b. is selected:**

Graduate Coordinator Dr. Linda Kline Thesis Chair Dr. Martin van den Berg

If c. is selected: Application is required for a grant or proposal? Yes  No   
If Yes—Name of Funding Source: \_\_\_\_\_

College/Department of Primary Investigator:

College Behavioral Social Sciences / Dept Psychology

Home Address of Primary Investigator: 191E Washington Ave  
Street Address or P.O. Box

City Chico State CA Zip 95926

Home Phone: 919. 260. 2161 Work Phone: \_\_\_\_\_ Email: amyraefox@gmail.com

Secondary Investigator: Dr. Martin van den Berg

(Faculty Advisor or Theses Chair is required to be Secondary Investigator if a student is primary investigator)

College Behavioral Social Sciences / Dept Psychology

Application Category

Exempt, Psychology

Project Title: Effects of timeline orientation and judgement on causal judgment in litigation law

Briefly describe the project purpose and methodology: \_\_\_\_\_

This study aims to understand the influence of visual representations of temporal sequence on causal judgement in litigation law. The experiment will examine influence of timeline orientation and direction on memory and causal reasoning by presenting subjects with one narrative of a sequence of events. 2 (orientation: horizontal vs. vertical) X 2 (direction: same as writing vs. opposite to writing) design, yielding four experimental conditions. Participants will be presented with instructions in a legal case, then asked to view a lawyer's closing argument in one of four experimental conditions. Participants will then answer a number of questions testing their memory for the details presented in the case, and render a verdict.

Project's: Beginning Date 03/02/2015 Ending Date 03/02/2016  
Begin date can't precede approval mm/dd/yy mm/dd/yy

Select one:  New Project  Modification  Substudy

If Modification or Substudy, please list project title and name of primary investigator from previous study.

\_\_\_\_\_

Complete all sections (If a section is not applicable to your project, indicate N/A)

Subject population: University Students

Subject source: University Student Volunteers

Number of subjects: 150

How subjects will be contacted: sign-up sheets in Psychology Department & other campus buildings

**Note: In most research, subjects MUST give written (usual), oral (sometimes), or written AND oral informed consent. A copy of your Informed Consent form must be attached to this application, (See page 4 of the attached, Requirements for Research Using Human Subjects, for detailed information about Informed Consent requirements.)**

Specify types of instruments to be used (e.g., tests, questionnaires, interview guides, etc.)

Demographic questionnaire, computer-based spatial preference orientation test, computer-based memory task, computer-based decision task.

**A copy of all instruments to be used must be attached.** If they have not been completely developed, please attach a draft.

How administered:  Phone  Mail  Face-to-face  Email  Internet

Length of subject participation: 1-2 hours

Frequency of subject participation: once

Data will be recorded using (check all that apply):

- |  |  |
|--|--|
| <input type="checkbox"/> Written Notes                 | <input type="checkbox"/> Photography         |
| <input type="checkbox"/> Audio tape                    | <input type="checkbox"/> Film                |
| <input type="checkbox"/> Video tape                    | <input checked="" type="checkbox"/> Computer |
| <input type="checkbox"/> Other (Please describe _____) |  |

**Subjects' confidentiality must be preserved. This requires that their identity and the fact and the nature of their responses be kept in confidence. Please indicate all measures you will take to insure the protection of subjects' confidentiality including where all data will be stored and when it will be destroyed:**

1. The data collected will be entirely confidential and used exclusively for research.
2. The computer program recording response data will assign each subject a random ID number, which will serve as the only unique identifier for each subject.
3. No personally identifying information (name, address, telephone) will be collected.

Please check (X) each category of data, which will be collected, and place a star (\*) after each category of data which will be reported in your study.

**Subjects**

- Names of People
- Addresses
- Phone Numbers
- Ages
- Sex Categories
- Ethnicity
- Marital Status
- Types of Employers
- Incomes
- Job Titles
- Names of Employers

**Other**

- Codes Linked To Subjects' Names By Separate Code Key
- Codes Not Linked To Subjects' Names
- Other Unique Information About Individuals

Specify \_\_\_\_\_

Will existing data be used?       yes       no  
(Specify \_\_\_\_\_)

)

Will there be interventions or manipulations of subjects or their environments?  
(Specify Yes, subjects in each experimental condition will view the lawyer's closing arguments accompanied by a timeline in a different visual orientation and direction. \_\_\_\_\_)

Will the research involve?      Psychological Stress?  yes       no  
Physical Hazards?  yes       no

If yes, please specify (\_\_\_\_\_)

)

Will there be debriefing of subjects?  yes       no  
If yes, please describe ( Subjects will view a debriefing page at the end of the session, containing a thank you note, description of the hypotheses and experimental conditions. An offer to view the results and contact the researchers will be included. \_\_\_\_\_)

Will data reporting be  aggregated?  anecdotal?  
Data will be used for (check all that apply):

Data will be used for?  Publication  Conference presentation  
 Evaluation  Degree Requirement  
 Needs Assessment  Class report (written/oral)

Other (Please describe) \_\_\_\_\_

RECOMMENDATION

~

This activity has been reviewed in accordance with Federal regulations, including its relevant subparts. In compliance with these guidelines,

I concur

I do not concur

that this project is **exempt** from review of the Institutional Review Board or the Unit Regulatory Body.

---

Department Chair or other Supervisor (Faculty & Staff)

Date

---

Faculty Supervisor or Thesis Chair (Students)

Date

---

I concur

I do not concur

that this project is **exempt** from review of the Institutional Review Board or the Unit Regulatory Body.

---

Chair, Institutional Review Board

Date

Comments: \_\_\_\_\_

---

---

Human subjects are involved, but this activity qualifies for an **Expedited** Review.

---

---

Chair, Institutional Review Board

Date

Comments: \_\_\_\_\_

---

---

### **Full Board Review**

I concur

I do not concur

that this project has gone through the Institutional Review Board or the Unit Regulatory Body and the required modifications have been completed.

---

Chair, Institutional Review Board

Date

Comments: \_\_\_\_\_

---

Please turn off your mobile phone



Please put on your headphones

0

Participant # : \_\_\_\_\_

start

# Informed Consent

This investigation consists of one session lasting no more than two hours during which you will be asked to:

1. Read instructions.
2. Complete a survey.
3. Watch a number of videos.
4. Complete tasks and answer questions related to the videos.

It is important for you to know that this investigation conforms to the ethical guidelines of the American Psychological Association (APA). Thus, the data we collect from you will be coded to anonymous values, remain entirely confidential, and will be used exclusively for research. APA also ensures that you are free to withdraw your participation at any time should you choose to do so.

If you understand the Informed Consent and agree with its contents, click the corresponding checkbox below. If you wish to terminate your participation, please notify the experimenter, and you may be excused.

Select one option to indicate your choice:

- I have read and understood this Informed Consent and I agree with its contents  
 I do not wish to participate

continue

# Welcome

Thank you for volunteering your time to assist in our research!

In the interest of SCIENCE we ask for your complete and undivided attention during this session. We can't tell you why – as it may influence our results. At the conclusion of your session we will tell you about the purpose of the study.

This session consists of multiple tasks presented one after the other in a specific order. You must complete the tasks in the order presented, and must not return to a previous page, nor try to open any other window other than the study. Do not try to skip forward or back at any time.

To ensure accurate results, please:

- read all instructions *carefully*
- avoid touching the mouse or keyboard unless directed to do so

If you have questions at any time, please raise your hand and the experimenter will assist you.

*Now... on to the SCIENCE!*

continue

# Hello, Juror!

In this study, you are going to play the role of a **juror** on a civil trial involving a traffic accident.

1. First you will complete a short demographic survey.
2. Then you will view a video introducing you to the key legal concepts involved in the case. You will be tested to ensure you understand how to apply the legal concepts.
3. You will then view a legal argument by one of the lawyers in the case.
4. You will then complete a memory test to measure your memory and comprehension of the case.
5. Finally you will be asked to make a decision on the case.

This study will require all of your attention, and considerable cognitive effort. You may find some tasks challenging! Do not give up; try your best, and remain focused. Do not rush, and carefully consider the tasks in order to achieve your best performance. We are counting on you to show the best of your abilities, and are very thankful for your thoughtful participation.

*I will be playing the role of a \_\_\_\_.*

**continue**

## **PART ONE: VOIRE DIRE**

*In voirie dire, also known as jury selection, you will answer questions to determine your suitability to judge the case.*

continue

# [insert demographic survey]

[ finish with sct test w/ birthdate and graduation date]

submit

## Demographic questionnaire

1. Do you regularly ride a bicycle? (Y/N)
2. Do you drive a car? (Y/N)
3. Have you, a close friend or family member, ever been involved in a traffic accident which resulted in injury? (Y/N)
4. What is your major? (fill in the blank)
5. What is your year in school? (freshman/sophomore/junior/senior/graduate/other)
6. What is your gender? (male/female/other/prefer not to say)
7. What is your ethnicity (select all that apply: Caucasian, african, latin american, pacific islander, native american, other, prefer not to say)

## Computer-based spatial preference orientation test

1. What is your date of birth? (month/day/year)
2. What is your expected graduation date? (month/day/year)
3. When was your first day of kindergarten? (month/day/year)
4. When was your first day of work? (month/day/year) [If you have not held a job, provide your expected first day of work]
5. When did WWII end? (year)
6. Select timeline axis (horizontal/vertical)
7. Select timeline direction (L-R, R-L, T-B, B-T)

Now you are going to view a short educational video about ***contributory negligence*** and ***legal cause***.

You **will NOT be allowed** to pause, rewind or review the videos at any time.  
You **WILL be tested** on your comprehension of the contents.

continue

[insert video here]

**Pay careful attention; you can  
only view the video one time.**

continue

## //Key video contents

- "Contributory negligence" is a defense to a tort case, such as a personal injury lawsuit. In contributory negligence, the defendant argues that because the plaintiff was partly responsible for her own injuries, she should not win the case. To win on a contributory negligence defense, the defendant must convince the court that the plaintiff did not act as a reasonable person would in the same situation.
- For instance, suppose that the plaintiff was trying to cross a street when the defendant hit her with his car. The plaintiff sues the defendant, claiming that if he hadn't been driving negligently, he would not have hit her. The defendant may argue that contributory negligence applies because the plaintiff was jaywalking when she was hit. Because the plaintiff did not use reasonable care by crossing at the crosswalk, the defendant argues, she is partly responsible for her injuries and should not win the case or receive any damages.
- Contributory negligence may apply in this case even if the defendant was breaking the law at the time. For instance, even if the defendant was speeding, contributory negligence may prevent the plaintiff from recovering any damages if she was not using reasonable care when she crossed the street.
- In the law, a proximate cause is an event sufficiently related to a legally recognizable injury to be held to be the cause of that injury. For example, the proximate cause must have occurred *before* the injury.
- Cause-in-fact is determined by the "but for" test: But for the action, the result would not have happened. For example, but for running the red light, the collision would not have occurred.
- For an act to cause a harm, both tests must be met; proximate cause is a legal limitation on cause-in-fact.

Now you are going to answer some questions to  
test your comprehension of  
***contributory negligence*** and ***legal cause***.

continue

## Contributory Negligence

//incorrect answers taken to review page

T  F  A violation of a traffic law is considered a negligent act.

T  F  If someone commits an act of negligence, but was unaware of doing so, then it is *not* considered a negligent act

T  F  If a defendant can prove a plaintiff performed a negligent act, then they have met the burden of proof for the affirmative defense of contributory negligence.

T  F  If both the defendant and plaintiff performed illegal acts, then they are both at fault.

T  F  If the defendant was more negligent than the plaintiff then I should find for the plaintiff.

submit

## Cause

//incorrect answers taken to review page

T  F  If the claimed injury would not have occurred without event “x”, then event “x” is a *cause* of the injury.

T  F  A claimed injury can only have one legal cause.

T  F  A cause does not have to be the nearest immediately preceding event

submit

## **Congratulations!**

You have proven your knowledge of  
***contributory negligence*** and ***legal cause***.

You have been selected to serve on a **civil jury**,  
evaluating negligence in a **traffic accident**.

Thank you for doing your civic duty!

[continue](#)

## **PART TWO: ARGUMENTS**

*In this phase you will be presented with evidence and legal arguments for the case.*

continue

### **Woodward v. Johnson**

On June 26, 2013, Elliot Johnson drove into an intersection in Raleigh, North Carolina. At the same time, Michael Woodward crossed through the intersection on a bicycle. The two collided. The plaintiff Michael Woodward was injured and the defendant Elliot Johnson suffered damage to his vehicle.

*The plaintiff is [ ] who was operating a [ ]  
The defendant is [ ] who was operating a [ ]*

**continue**

Now you are going to view the **Closing Argument** by one of the lawyers in the case.

You **will NOT be allowed** to pause, rewind or review the video at any time.  
You **WILL be tested** on your comprehension of the contents.

continue

[insert video here]

**Pay careful attention; you can  
only view the video one time.**

continue

//key elements of legal argument

On June 26, 2013, Elliot Johnson, a working father employed at a technology company, drove into an intersection in Raleigh, North Carolina. At the same time, Michael Woodward, a working father employed at a consulting firm, crossed through the intersection on a bicycle. The two collided and the cyclist Mr. Woodward was injured. Mr. Johnson suffered minor damage to his vehicle. Mr. Johnson testifies that as he approached the intersection, the light changed from red to green. Mr. Woodward testifies that as he got to the intersection, the crosswalk signal stopped flashing, and that the opposing traffic still had a red light.

A witness in a nearby café claims the collision occurred at the start of the song played by the nearby bell tower (which plays on the hour). The plaintiff asserts that while biking, he was talking on his smartphone using earphones. A motorist witnessing the accident claims that they saw Mr. Johnson texting while driving, a claim which Mr. Johnson denies, stating that he does not regularly use his phone for texting. A police forensic examiner asserts that the defendant motorist was speeding, evidenced by the distance traveled after slamming on the brakes to avoid the collision. Phone records for Mr. Johnson show that he received a text message at 11:58 am and placed a phone call at 12:08 pm. Phone records for Mr. Woodward confirm that the plaintiff received a phone call at 11:45 am which lasted for 15 minutes.

The plaintiff (Woodward) is suing the defendant (Johnson) for negligence. The defendant is claiming an *affirmative defense* asserting that the plaintiff's injuries were caused in whole or in part by the plaintiff's own negligence.

### **Experimental Stimuli**

Note: These are draft materials. Actual material will be a video of an actor, playing a lawyer, delivering a narrative substantively similar to the text provided. During the argument, the lawyer will refer to a powerpoint presentation showing a timeline of the sequence events. Only the orientation and direction of the timeline in the powerpoint presentation will differ in each experimental condition.

You are now going to view a number of photographs, submitted as **evidence**.

From the next page, you may view the exhibits in any order, and return to them as many times as you wish. Once you are satisfied you have examined the evidence, press the SUBMIT button. You will no longer be able to return to the evidence.

You **will NOT be allowed** to return to the evidence after pressing the SUBMIT button.  
You **WILL** be tested on your comprehension of the contents.

continue

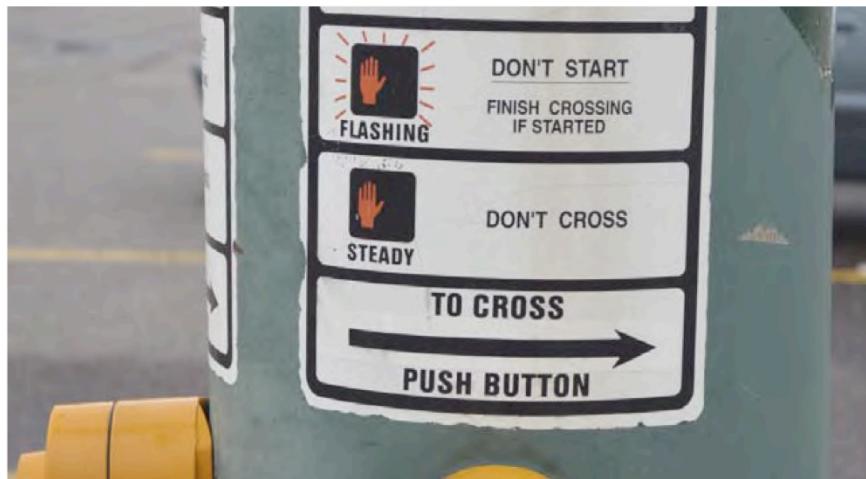
Exhibit 1 - Image of Defendants Vehicle (prior)  
Exhibit 2 - Image of Cross Walk Instructions at Scene  
Exhibit 3 - Image of Scene from the North Side of S. Golden Rd  
Exhibit 4 - Image of the Intersection of the Incident  
Exhibit 5 - Image of Damaged Bicycle  
Exhibit 6 - Image of Damaged Vehicle  
Exhibit 7- Road Map  
Exhibit 8 - Parker Madden CV  
Exhibit 9 - Elliot Johnson Phone Records  
Exhibit 10 - Michael Woodward Phone Records

submit

Exhibit 1 - Image of Defendant's Vehicle



Exhibit 2 - Image of Cross Walk Instructions at Scene



**Exhibit 3 - Image of Scene from the North Side of S.  
Golden Rd**



Exhibit 4 - Image of the Intersection of the Incident



Exhibit 5 - Road Map

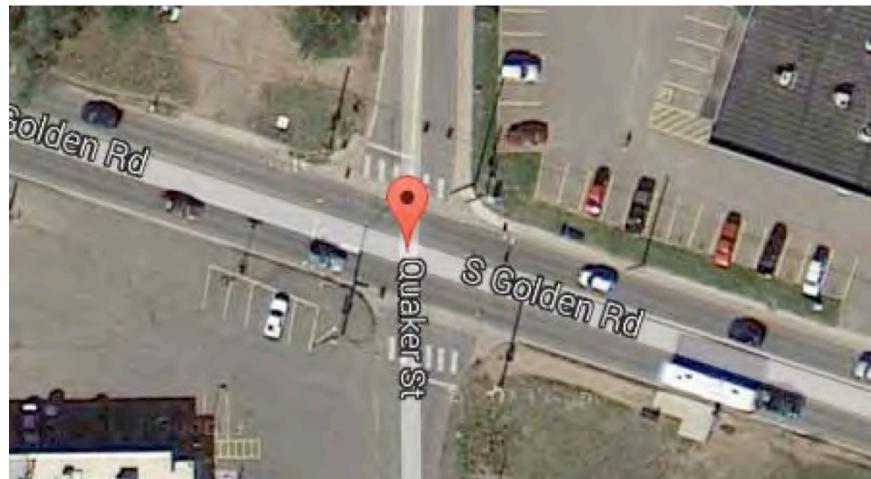


Exhibit 6 - Image of Damaged Bicycle



Exhibit 7 - Image of Damaged Vehicle



Exhibit 8 - Parker Madden CV

// insert resume

Exhibit 9 - Elliot Johnson Phone Records

//insert cell phone bill

Exhibit 10 - Michael Woodward Phone Records

//insert cell phone bill

## **PART THREE: DELIBERATION**

*In this phase you will consider the evidence and arguments presented,  
apply the relevant case law, and render a decision.*

continue

Now you are going to listen to the Trial judge  
explain the **Jury Instructions**

You **will NOT be allowed** to pause, rewind or review the video at any time.  
You **WILL be tested** on your comprehension of the contents.

continue

[insert video here]

**Pay careful attention; you can  
only view the video one time.**

continue

Note: These are draft materials. Actual material will be a video of an actor, playing a judge, delivering instructions substantively similar to the text provided in the next 6 slides.

Issues to be decided

The plaintiff (Woodward) claims that the defendant (Johnson) was negligent, and that that the defendant's negligence caused an injury to the plaintiff. As an affirmative defense, the defendant (Johnson) asserts that the plaintiff's injuries were caused in whole or in part by the plaintiff's own negligence.

The only issue to be decided by the jury are whether the defendant is liable for the injuries suffered by the plaintiff, and whether the plaintiff is liable for any of his own injuries.

continue

### Burden of Proof

Each side must prove their claim by a preponderance of the evidence. This means to prove that it is more probably true than not. If a party fails to meet his or her burden of proof as to any claim or defense, or if the evidence weighs so evenly that you are unable to say that there is a preponderance on either side, you must reject that claim or defense.

continue

Finding for the PLAINTIFF

For the plaintiff (Michael Woodward) to recover from the defendant, (Elliot Johnson) on the plaintiff's claim of negligence, you must find that all of the following have been proven by a preponderance of the evidence:

1. The plaintiff had injuries;
2. The defendant was negligent; and
3. The defendant's negligence was a cause of the plaintiff's injuries.

If you find that any one or more of the above three statements *has not been proven*, then your verdict must be for the defendant and you may disregard the remainder of this instruction.

On the other hand, if you find that all of the above three statements *have been proven*, then you must determine whether the defendant has proven the affirmative defense of comparative negligence.

continue

### Finding for the DEFENSE

The affirmative defense of the *comparative negligence of the plaintiff*, is proven if you find all of the following:

1. The plaintiff was negligent; and
2. The negligence of the plaintiff was a cause of the plaintiff's own claimed injuries.

If you find the plaintiff (Michael Woodward) was injured, and that the plaintiff's injuries were caused in whole or in part by his own negligence, then you must accept the affirmative defense and find in favor of the defendant. The defendant must show that the plaintiff's negligence *contributed* to the accident. If the plaintiff's behavior made his injuries worse, but didn't actually cause the accident, the defendant has failed to prove the affirmative defense.

[continue](#)

Traffic Law

At the time of the occurrence in question in this case, the following statutes were in effect:

- Vehicular traffic facing a green light may proceed, traffic facing a red light must stop before entering the intersection, and shall remain stopped until an indication to proceed is shown. Traffic facing a yellow signal must yield and prepare to stop.
- A person under 18 shall not use a wireless telephone while operating a motor vehicle. A person 18 years or older shall not use a wireless telephone for the purpose of text messaging while operating a motor vehicle.
- Whenever special pedestrian-control signals exhibiting the words "Walk" or "Don't Walk" are in place, such signal shall control the actions of bicyclists using the pedestrian crosswalks.
- While the "Walk" sign is illuminated, a bicyclist facing such signal may proceed across the roadway in the direction of the signal indication.
- Whenever the "Don't Walk" indication is flashing, no bicyclist shall start to cross the roadway in the direction of the indication, but any bicyclist who has partially completed his crossing during the "Walk" indication shall proceed to a sidewalk or to a safety island, and all drivers of vehicles shall yield to any such bicyclist.
- While the "Don't Walk" indication is steadily illuminated, no bicyclist shall enter the roadway to cross that roadway in a pedestrian crosswalk in the direction of the signal indication.
- A person operating a motor vehicle or bicycle may not wear a headset covering, or earplugs in, both ears

A violation of any of the above statutes constitutes negligence. If you find such a violation, you may only consider it if you also find that it was a cause of the plaintiff's claimed injuries.

**continue**

Responsibility of Juror

You must adjudicate this case based on the facts presented.

You must not be influenced by sympathy, bias, or prejudice for or against any party in this case.

You must not render a decision in this case until you are confident you understand the evidence presented, the jury instructions and the legal issues at hand.

continue

Now you will be tested on your memory and comprehension of the case.

continue

[1] Please describe everything you remember about the case

{ subjects enter free response }

submit

[2] Please answer the following questions about the case

- Insert statement here

[continue](#)

**Computer-based memory task**

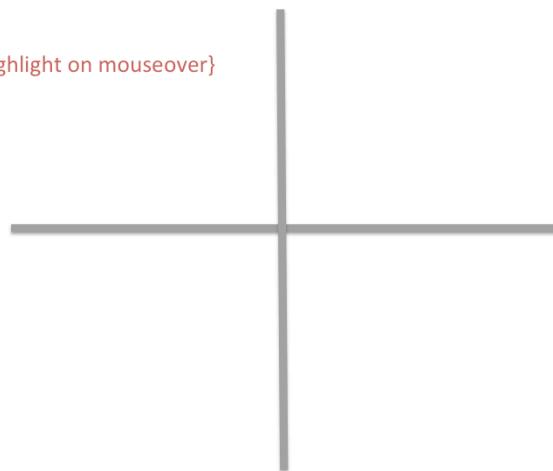
Will consist of ~ 20 multiple choice and T/F questions pertaining to the content of the jury instructions and presented legal arguments.

On the next page, you will construct a timeline  
of the events that occurred in the case

continue

[audio: please select an axis for your timeline]

{axis highlight on mouseover}



continue

[audio: please select a direction for your timeline]

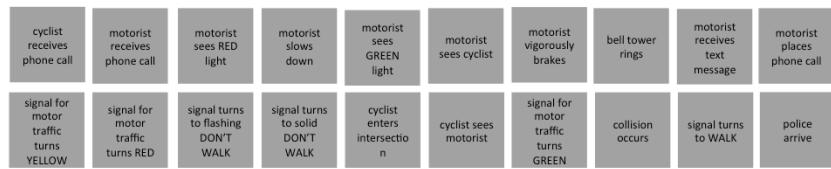
{arrow highlight on mouseover}



continue

[audio: please arrange the events in the order they occurred]

{subject drags and drops boxes into the desired order}



continue

Now you will be asked to render a decision

continue

Finding for the

plaintiff

defense

I find that ...

- the plaintiff has proven by a preponderance of the evidence that the defendant's negligent acts caused injury to the plaintiff. ***Finding for the Plaintiff***
- the defense has proven by a preponderance of the evidence that the plaintiff's negligent acts were the sole cause of the plaintiff's injuries. ***Finding for the Defense***
- the defense has proven by a preponderance of the evidence that the plaintiff's negligent acts were a partial/contributing cause of the plaintiff's injuries. ***Finding for the Defense***

Review jury  
instructions

submit

## **Congratulations!**

You have completed our study, and made a  
contribution to science.

*What was this about, anyway?*

continue

# Debriefing

Thank you very much for your participation in this study. This debriefing will tell you more about it, what you did, and why.

## What did we do?

You have just listened to an argument in a civil litigation trial, and completed a series of tasks to test your memory of the events you were presented. In the video of the lawyer's argument, you saw a timeline, oriented either horizontally or vertically. Some of you saw a horizontal timeline, where the information was either shown from left to right or right to left. Others saw a vertical timeline, the information was either shown from top to bottom or bottom to top. You were also asked to reconstruct the sequence of events of the traffic accident, and select an orientation and direction for the flow of information.

## Why did we do it?

Previous research suggests that humans possess remarkable flexibility in the ways we utilize spatial metaphors for conceptualizing time. One of the most common metaphors is the use of a timeline to represent the order of a sequence of events. We want to see to extent to which individuals can adapt to different visual presentations of timelines when making judgments in a legal case. Our goal is to determine if timelines oriented in ways inconsistent with reading direction might result in reduced memory performance, and therefore errors in legal and causal reasoning.

## What do we expect to find?

First, we expect to find that individuals presented with timelines oriented consistent to reading direction (horizontal-left to right) have the best performance in memory tasks and the fewest errors in causal reasoning. We expect that individuals presented with timelines in the vertical orientation have poorer performance, but better than those who viewed timelines presented opposite to reading direction (horizontal-right to left). We have based our hypotheses on the idea that spatial representations of time are constructed in working memory, and that cognitive effort is required to integrate representations that differ from the cultural norm of reading direction.

## Why is it important?

In litigation law, lawyers must describe a sequence of events to judge and jury while making a persuasive argument as to the cause of an alleged wrongdoing. Temporal sequence – the order of events – is the most basic requirement for causation. Increasingly, lawyers are turning to graphical representations in the courtroom, such as animated PowerPoint presentations, to support their arguments. We think it is important to understand the influence of timelines on memory, comprehension and decision making of jurors.

If you have any question about the study or wish to know more, please feel free to contact Amy Fox : [amyraefox@gmail.com](mailto:amyraefox@gmail.com) or Dr. Martin van den Berg: [mvandenbergs@csuchico.edu](mailto:mvandenbergs@csuchico.edu).

**It is really important that you do not discuss this experiment with other students who might participate after you. They must participate in the same way as you did, without any knowledge of what the experiment entails, or the reasoning behind it.**

Thank you so much for your participation. We hope you enjoyed participating in this study as much as we enjoyed designing it.